

Stated Meeting, July 20.

Present, eight members.

Dr. PATTERSON, President, in the Chair.

The following donations were announced:—

FOR THE LIBRARY.

Untersuchungen über die Gegenseitige Lage der Bahnen der zwischen Mars und Jupiter sich bewegenden Planeten. Inaugural Dissertation von Benjamin Apthorp Gould. Göttingen, 1848. 4to.
From the Author.

Dei Fenomini Elettrici della Macchina di Armstrong, e delle cause loro assegnate dai fisici. Memoria del Cav. Prof. F. Zantedeschi. 8vo.—*From Prof. Zantedeschi.*

Dell' Influenza delle Variazioni di Pressione nelle Indicazioni Termometriche. Memoria del Cav. Prof. Franc. Zantedeschi. 8vo.
From the same.

Della Produzione d'Imagini ottenuta dalla Proiezione Spontanea degli Ossidi Metallici sottoposti ad alte temperature e di un quarto stato della materia. Del Cav. Prof. Franc. Zantedeschi. 8vo.—*From the same.*

Elenco delle Principale Opere Scientifiche dell' Abate Francesco Zantedeschi, &c. Venezia, 1849. 8vo.—*From the same.*

Catalogue of Plants, native and naturalized, collected in the vicinity of Cincinnati, Ohio, during the years 1834—1844. By Thomas G. Lea. Philadelphia, 1849. 8vo.—*From Isaac Lea.*

Sixty-second Annual Report of the Regents of the University of the State of New York: made to the Legislature, March 1, 1849. Albany, 1849. 8vo.—*From the Regents of the University of the State of New York.*

Service Pipes for Water. An Investigation made at the suggestion of the Board of Consulting Physicians of Boston. By Prof. E. N. Horsford. Cambridge, 1849. 8vo.—*From the Author.*

The Pennsylvania Journal of Prison Discipline and Philanthropy. Published quarterly, under the direction of "The Philadelphia Society for Alleviating the Miseries of Public Prisons," instituted 1787. Vol. IV. No. 3. July, 1849. Philadelphia. 8vo.—*From the Philadelphia Prison Society.*

- The Annals and Magazine of Natural History, including Zoology, Botany and Geology. Vol. III. No. 17. May, 1849. London. 8vo.—*From Sir William Jardine, Bart.*
- Monthly Notices of the Royal Astronomical Society. Vol. IX. No. 7. May 11, 1849. London. 8vo.—*From the Society.*
- The American Journal of Science and Arts. Conducted by Profs. Silliman and Dana. Second Series. Vol. VIII. No. 22. July, 1849. New Haven. 8vo.—*From the Editors.*
- Observations at the Magnetic and Meteorological Observatory at the Girard College, Philadelphia: made under the direction of A. D. Bache, L.L.D., and with funds supplied by the Members of the American Philosophical Society, and by the Topographical Bureau of the United States. 1840 to 1845. Printed by order of the Senate of the United States, and under the direction of the Topographical Bureau. 3 Vols. 8vo. and one 4to. Vol. of Plates. Washington, 1847.—*From A. D. Bache, L.L.D.*
- The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. XXXV. New Series. July, 1849. Philadelphia. 8vo.—*From Dr. Isaac Hays.*
- The Medical News and Library. Vol. VII. No. 79. July, 1849. Philadelphia. 8vo.—*From Lea and Blanchard.*
- Journal of the Franklin Institute. Third Series. Vol. XVIII. No. 1. July, 1849.—*From the Institute.*
- On the Composition of Schuylkill Water. By Martin H. Boye, M.D. A.M.—*From the Author.*
- The African Repository and Colonial Journal. Vol. XXV. No. 7. July, 1849. Washington. 8vo.—*From the American Colonization Society.*
- The Documentary History of the State of New York, arranged under direction of the Hon. Christopher Morgan, Secretary of State. By E. B. O'Callaghan, M.D. Albany, 1849. 8vo.—*From the Regents of the University of the State of New York.*
- Notes on the Cathedral Libraries of England. By Beriah Botsfield. London. 1849. 8vo.—*From the Author.*
- Bulletin de la Société de Géographie. Troisième Serie. Tome IX. Paris, 1848. 8vo.—*From the Geographical Society of Paris.*
- Journal Asiatique. Quatrième Serie. Tome XII. Nos. 57, 58, 59, 60. Aug. to Dec. 1848. Paris. 8vo.—*From the Asiatic Society of Paris.*

Dr. Horner called the attention of the members to the popu-

lar opinion, that the prevalence of Cholera is owing to a peculiar condition of the atmosphere.

Dr. Franklin Bache made some observations on the presumed electrical condition of the atmosphere as connected with Cholera, and doubted the influence ascribed to this condition in some recent publications.

Mr. Sears C. Walker communicated to the Society the discovery of a new analogy in relation to the periods of rotation of the primary planets, recently made by Mr. Daniel Kirkwood, of Pottsville, Pa.

Mr. W. remarked at length on the nature of the analogy, and gave his opinion, based on careful computations, made for the purpose of testing the hypothesis, that it deserves to rank at least with Kepler's harmonies, and that its close agreement with the elements of all the primary planets, justifies the remark, "that it is difficult to resist the conclusion that it is a law of nature."

This analogy may be thus expressed: "The square of the number of a planet's days in its year, is as the cube of Laplace's diameter of the planets sphere of attraction in the nebular hypothesis."

Mr. W. expressed a belief, that Mr. Kirkwood's analogy would tend to throw light on the present internal organization of the planets, and perhaps, also, on their more primitive condition, as assumed by Laplace in his nebular hypothesis.

Whatever may have been in a more primitive state, that quantity of motion which is now the momentum of rotation of the planets, we know that it must have been a constant. While, therefore, each planet now preserves this constant momentum of rotation, it has taken such a diameter, such a mean density, and such a decrease of density, from centre to surface, as to give it that angular velocity of rotation, which has, towards the ratio of the mean distance, and primitive diameter of the sphere of attraction, the very simple relation first discovered by Mr. Kirkwood. If either the diameter, mass or law of decrease of density, from centre to surface, for any one of the planets were different from its present state, Kirkwood's analogy would fail for that planet.

We may also remark, that a great change in the quantity of caloric of a planet, or in the law of its distribution in the interior of it, or in the calorific repulsion of any two adjacent particles, at a given temperature and given distance from each other, would impair the precision of the analogy. Since no such defect is noticed in the applica-

tion of Kirkwood's analogy to the planets of the system, it follows, that, in their present condition, they present that nice adaptation of parts which is necessary to produce in the whole the harmony noticed by Mr. Kirkwood. This nice adaptation of parts they must have had in any primitive state differing from the present. To such a state our attention is unavoidably drawn by the necessity of introducing into Kirkwood's formula, the diameter of their sphere of attraction, derived from the nebular hypothesis.

The stated business of the meeting, the balloting for candidates for membership, was postponed in consequence of there not being the requisite quorum of members present.

Pending nominations, Nos. 226 to 231, inclusive, were read.

Stated Meeting, August 17.

Present, eight members.

Dr. PATTERSON, President, in the Chair.

Letters were received and read:—

From the Academy of Natural Sciences of Philadelphia; and from Gen. Jos. G. Totten, announcing donations to the Society.

The following donations were announced:—

FOR THE LIBRARY.

Reports, &c. of the Smithsonian Institution, exhibiting the Plans, Operations and Financial Condition, up to January 1, 1849. From the Third Annual Report of the Board of Regents. Presented to Congress, Feb. 19, 1849. Washington. 8vo.—*From the Institution.*

Another copy of the same.—*From Dr. Dunglison.*

An Account of the Observatory at Pulkova, as written for the North American Review. July, 1849.—*From the Author, B. A. Gould, Jr.*

Astronomical Observations made at the Radcliffe Observatory, Oxford, in the year 1847. By Manuel J. Johnson, M.A. Radcliffe Observer. Vol. VIII. Published by order of the Radcliffe Trustees. Oxford, 1849. 8vo.—*From the Radcliffe Trustees.*

Circular prepared by direction of the Hon. Wm. Ballard Preston, Secretary of the Navy, in relation to the Astronomical Expedition to Chili. By Lieut. M. F. Maury, U. S. N., Superintendent of